Odyssey of the Eyes Advanced Level

Overall Purpose

To familiarize students with the concept of modeling as it is related to remote sensing

Advanced Level Purpose

In this advanced level activity, students exchange the digitized versions of their map with students in another school or classroom. Each group of students recreates the original image's cover types.

Overview

The advanced level of *Odyssey of the Eyes* demonstrates how a satellite sensor relates information to the computer. The students translate their maps into digital code and send it to another class room for translation into a color map. The connection between remote sensing technology, computer imagery and land cover assessment should be solidified at this point.

Time

Three to four class periods

Level

Advanced

Key Concepts

Objects in a remotely sensed image is interpreted and digitized based upon the object's reflectance of bands of light.

The image codes are relayed through a satellite dish to a computer for storage or enhancement.

Image display is accomplished by conversion of stored data to a user-defined color-coded image.

Skills

Observing an image

Interpreting an image

Classifying an image

Interpreting color codes for an image

Note: This activity presents concepts similar to those in steps 8, 9, and 10 of the *Relative and Absolute Directions Learning Activity* in the *GPS Investigation.*

Materials and Tools

Internet (optional)

Graph paper

Colored pencils

Digitized map produced from Part 2 of *Odyssey of the Eyes: Intermediate Level*

Computer Skills

Preparation

Assemble the materials.

Students will exchange digitized versions of their map with students in another school or classroom so a classroom or a school needs to be contacted in advance.

Prerequisites

Students should be briefed on the process by which satellites receive their information and relay it to computer.

The beginning level activity is necessary for the completion of this activity.

The students need to complete the Intermediate level activity.

What To Do and How To Do It

1. In the previous activity *Odyssey of the Eyes: Intermediate Level*, your students translated their map models into a digitized code. Type this digitized code into a word processor. Use a "0" to begin and end each line of the map. Allow the numbers to "word wrap" on the screen so that the map pattern is not visible in the message.

   example:

   0111122001111330024643400246444002556550044444440011112200111133001111330011
   1112200111133001111330024643400246444002556550044444440011112200111133002464340
   0246444002556550024643400246444002556550044444440011112200255655004444444001111
   2200111133001111330011112200111133001111330024643400246444002556550044444440011122

2. Include the key to translate from codes to colors. (See Odyssey of the Eyes Digitized Data Sheet as filled in during the Intermediate Level activity.)

   Example:

   1 violet

   2 indigo

   3 green

   4 yellow

   5 orange

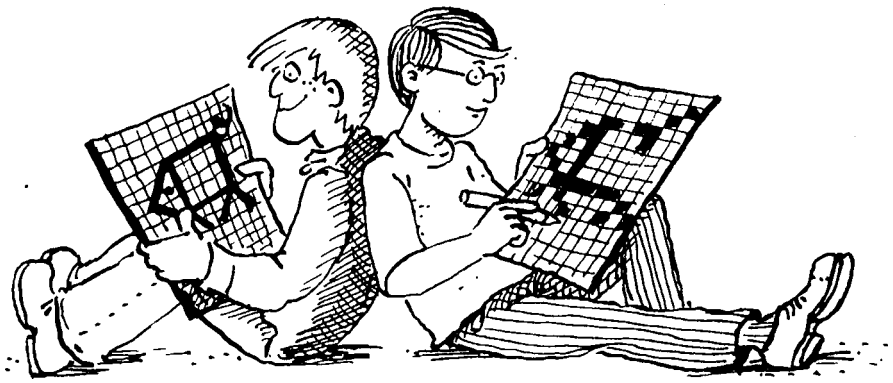
   6 red

3. Students in another class or school will receive the code and translate the code into a color map, producing a false color image. The completed maps can be returned to the sending school for verification.

Note: This exchange can be done on the Internet, by exchanging disks between schools or classes, or just by exchanging hard copies of the information.

Discussion Questions

1. What is the most dominant land covers on your false color image? To what geographical region do you think this area would belong?
2. Can you recreate a sketch of a map or a model of the area?



Source: Jan Smolík, 1996, TEREZA, Association for Environmental Education, Czech Republic

Table LAND L-11: Registration Form - Odyssey of the Eyes

Odyssey of the Eyes
Names of Group Members:
Date:

Registration Form

Description and Diagram of Proposed Model

Materials Needed:	Provided By:

Figure LAND-L-25: Observation of the Model - Odyssey of the Eyes

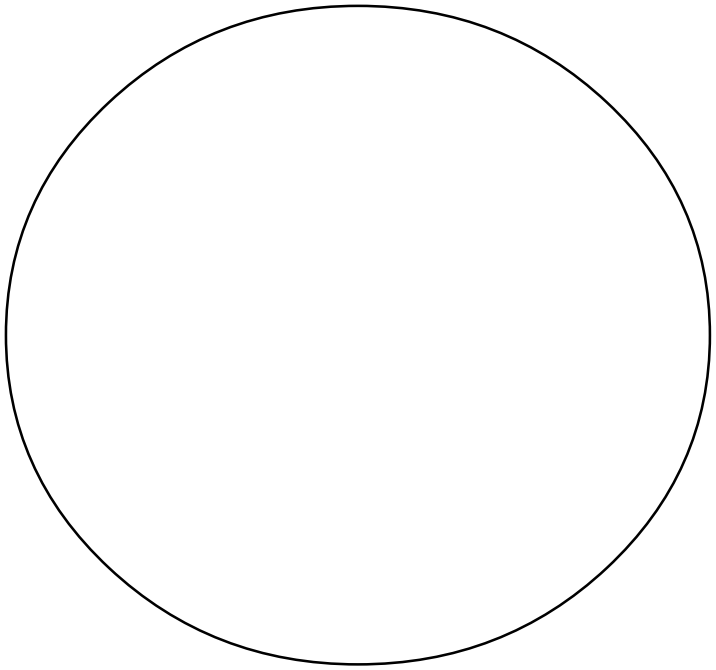
Odyssey of the Eyes

Observations of the Model

NAME:

DATE:

Airplane View



Satellite's View

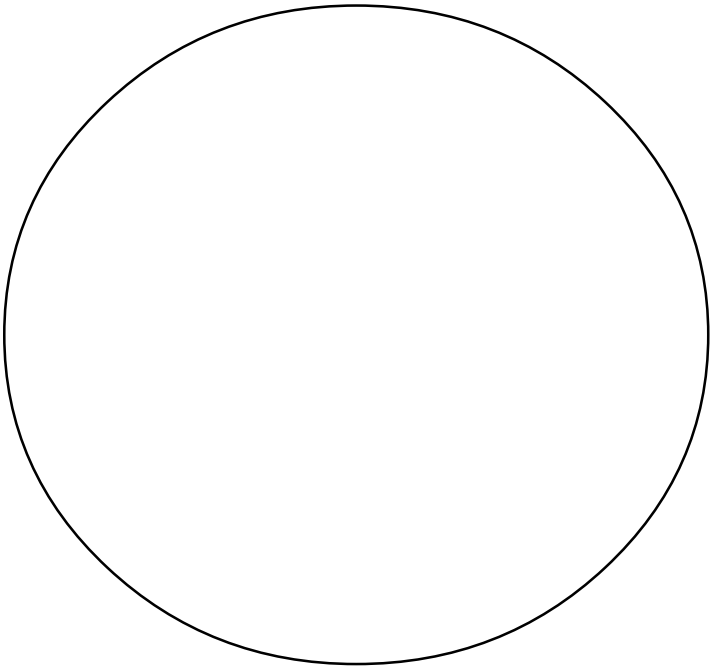


Figure LAND-L-26: Observations of the Model - Odyssey of the Eyes

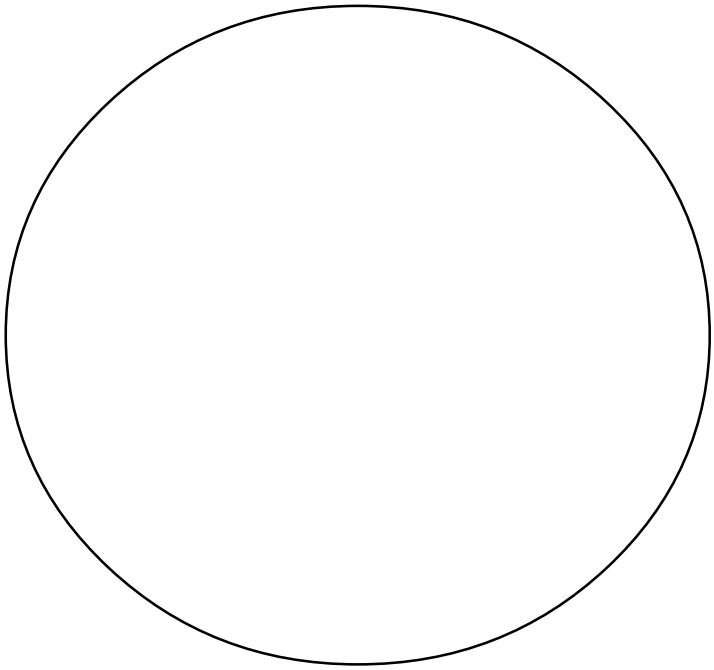
Odyssey of the Eyes

Observations of the Model

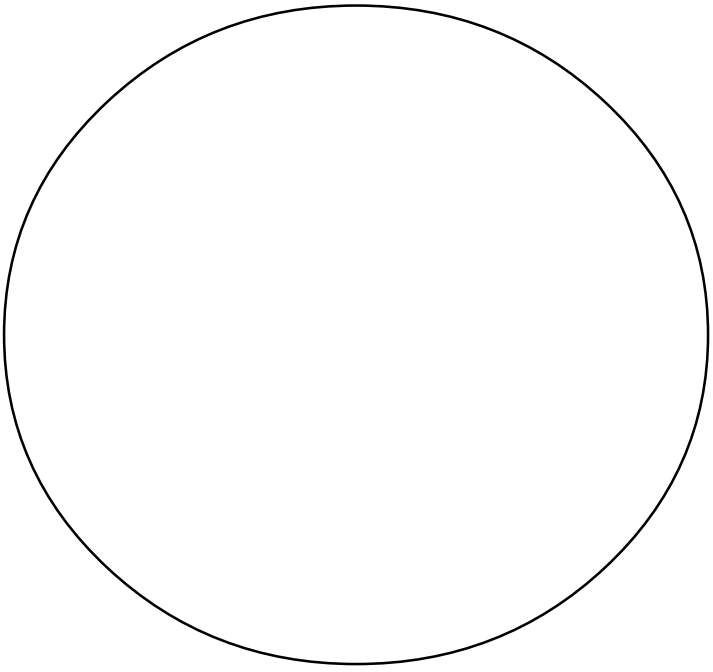
NAME:

DATE:

Bee's Eye View



Bird's Eye View



Odyssey of the Eyes

NAME:

DATE:

Symbolic Map Data Sheet

LAND COVER KEY

Land cover item	Symbol
Road	Checked areas
Trees	Squares

1.
2.
3.
4.
5.
6.
7.

SYMBOLIC MAP

Including dimensions of model in centimeters (Length and width)

Odyssey of the Eyes

NAME:

DATE:

Digitized Data Sheet

Color and Number Code Key

Land cover	Symbol	Number	Digitizing Color

Digitized Code

Use a 0 to indicate the beginning and ending of each scan line.

0_____ _____ _____ _____ _____ _____ _____ _____**0**
0_____ _____ _____ _____ _____ _____ _____ _____**0**
0_____ _____ _____ _____ _____ _____ _____ _____**0**
0_____ _____ _____ _____ _____ _____ _____ _____**0**
0_____ _____ _____ _____ _____ _____ _____ _____**0**
0_____ _____ _____ _____ _____ _____ _____ _____**0**
0_____ _____ _____ _____ _____ _____ _____ _____**0**
0_____ _____ _____ _____ _____ _____ _____ _____**0**
0_____ _____ _____ _____ _____ _____ _____ _____**0**

Figure LAND-L-27: Grid - Odyssey of the Eyes

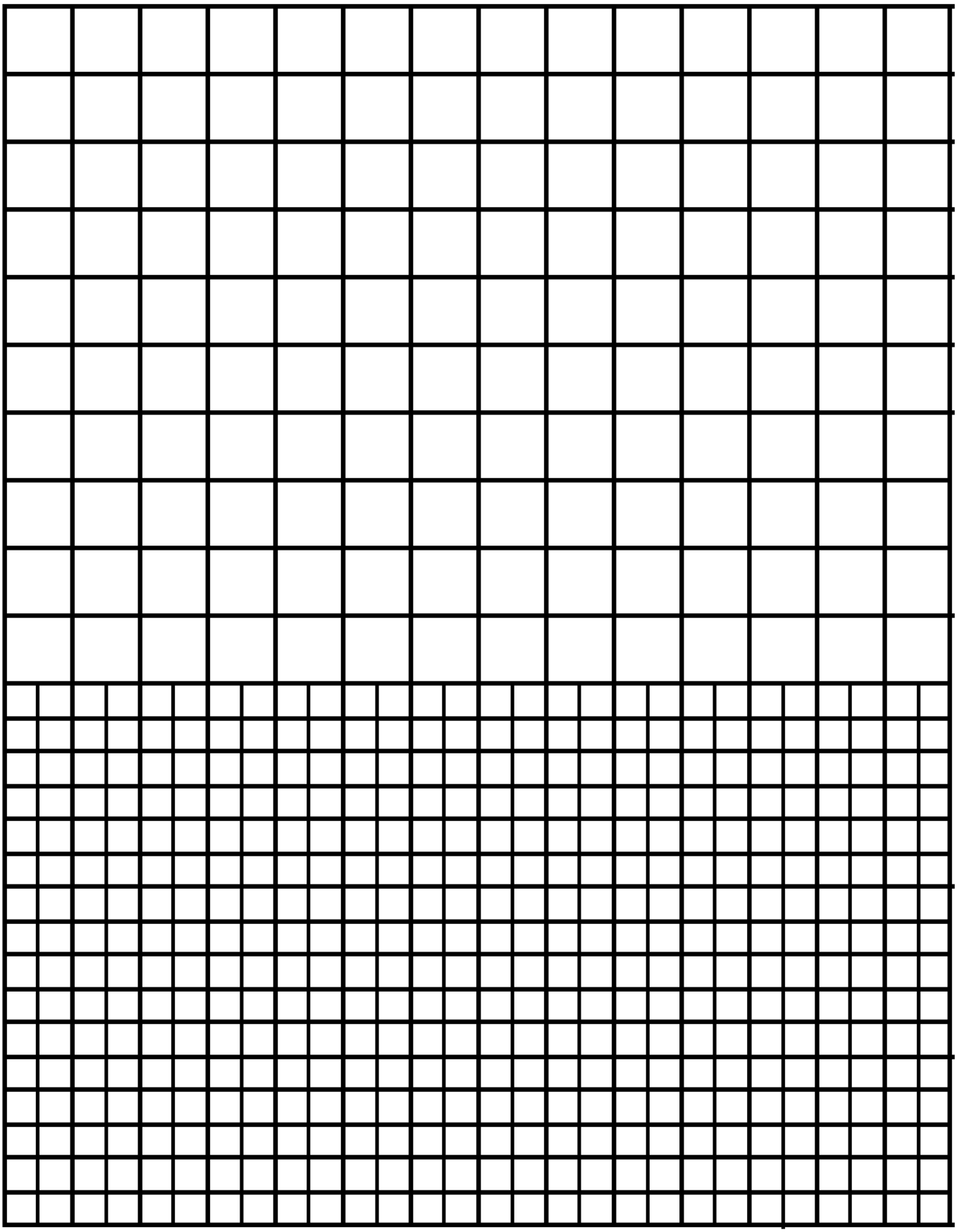


Figure LAND-L-28: Teddy Bear - Odyssey of the Eyes